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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/575,501

Applicant(s)

BOYCE ET AL.

Examiner

MAX SHIKHMAN

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

Response to Amendment

1. Applicants' response to the last Office Action, filed 03/06/2009 has been entered and made of record.

Remarks

2. Applicant's Argument: Film grain simulation, as described in the Gomila publication seeks to add noise to create film grain for blending with an image, *thereby creating artifacts in that image.*

Reply: Figs 1,2. "Input video" had "Film grain removal", therefore artifact is lack of film grain. Hiding artifacts is adding film grain in "Film grain simulation".

3. Applicant's Argument: Page 9, lines 8-10 of the Gomila publication which discusses the desirability of smoothing blocking artifacts arising from the addition of the film grain by the use of a 3-tap filter.

Reply: Page 9, lines 8-10 "*blocking artifacts resulting from small size of transform*", not from an addition of film grain.

4. Applicant's Argument: In contrast, the present invention adds noise where necessary to substantially hide artifacts.

Reply: This means adding one artifact to hide another artifact, "*thereby creating artifacts in that image*". Oxymoron.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 6 rejected under 35 U.S.C. 102(e) as being anticipated by Boyce
(Provisional App # 60496426) "Video comfort noise addition technique".

() Regarding Claims 1, 6:

[note: one parameter=Eq3 alpha]

1.(Currently amended) A method for reducing subjective artifacts in a video image, comprising the steps of:

receiving supplemental information (Fig2 "Decoded pictures" "Bitstream info") that includes at least one parameter that specifies an attribute [Eq1 $N(k-1)$] of comfort noise

$N(k, x, y)$ for addition to an image; $[D(k, x, y) = P(k, x, y) + N(k, x, y)]$

generating temporally correlated (P3 "noise signals are temporally correlated") noise; and (Fig2 "Noise Generator". $N(k, x, y)$)

making a determination, in accordance with the at least one parameter, (Eq3 alpha) whether to add (Eq3 if $\alpha=0$, no noise) the temporally correlated noise, (P3 "noise signals are temporally correlated") and if so,

adding such noise (Eq 1-3) to the image at a level in accordance with the at least one parameter (Eq3 alpha) to substantially hide artifacts. (p1 "hide compression artifacts". p2 "improve the subjective video quality.")

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claim **1,6; 9,10** rejected under 35 U.S.C. 102(a) as being anticipated by GOMILA: "SEI message for film grain encoding" JVTOF-ISO-IEC MPEG ANDITU-T VCEG JVT-H022,23 May 2003 (2003-05-23).

() Regarding Claims 1,6:

(NOTE: supplemental information=Fig1, 2 SEI.

temporally correlated noise=P5 temporal correlations= P4 SEI message should apply to all frames.
noise for addition= P3 "noise added to the image". P4 "add the simulated grain to the signal". P5 "additive grain")

1. A method for reducing subjective artifacts in a video image, comprising the steps of:
receiving supplemental information that includes at least one parameter that specifies an attribute of comfort noise for addition to an image; (P3 "noise added to the image". P4 "add the simulated grain to the signal". P5 "additive grain model")

generating temporally correlated noise; and (formulas 1,2 G.)

making a determination, in accordance with the at least one parameter, (Figs 1,2 SEI) whether to add (If "SEI Message" is present then add; if no signal, set G=0 or {p,q,r,s,u=0}, do not add.) the temporally correlated noise, (formulas 1,2 G.) and if so,

adding such noise to the image at a level (G in formulas 1,2) in accordance with the at least one parameter (SEI. Formula2 q,r,s,u) to substantially hide artifacts. (Figs 1,2. Since "Input video" had "Film grain removal", artifact is lack of film grain. Hiding artifacts is adding film grain in "Film grain simulation".)

() Regarding Claim 9:

9. The apparatus according to claim 6 wherein the means for adding temporally correlated noise adds temporally correlated noise to one of luma or chroma pixels.
(P3 "grain can also be added to the luma component in the YUV color space.")

() Regarding Claim 10:

10. The apparatus according to claim 9 wherein the means for adding temporally correlated noise adds temporally correlated noise to both luma and chroma pixels. (p6 "In (b), the variance of the noise added to the luma component was set to 15, while the variance of the noise added to the chroma components ranged from 5 to 20.")

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2,7,8; 3-5 rejected under 35 U.S.C. 103(a) as being unpatentable over

Gomila: "SEI message for film grain encoding" JVTOF-ISO-IEC MPEG ANDITU-T VCEG JVT-H022, 23 May 2003 (2003-05-23) in view of

Suzuki US-PAT-NO: 5768403.

() Regarding Claims 2,7:

and picture quantization parameters (3) to obtain weights of temporal correlation factors for weighting the added noise. (formula 3. p, u, v)

Gomila discloses everything as described above except, obtaining a block pixel average; accessing a look-up table using the block pixel average and picture quantization parameters to obtain weights of temporal correlation factors for weighting the added noise.

Suzuki discloses as follows.

obtaining a block pixel average; (Pa. Col7 line 66)

accessing a look-up table using the block pixel average ("LUT 7 is accessed with address data of 20 bits long, which is the combination of the in-block average value Pa,")

As Suzuki discloses it is desirable to access a LUT using block average Pa, this can identify image area. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention, to use Suzuki's method in Gomila, access a LUT using pixel block average.

All the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

() Regarding Claim 8:

8. The apparatus according to claim 7 wherein the look up contains Gaussian random numbers. (P5 N is a random value with normalized Gaussian distribution. Fig 4.)

Claim 3. All limitation of claim 3 disclosed in claim 8.

Claim 4. All limitation of claim 4 disclosed in claim 9.

Claim 5. All limitation of claim 5 disclosed in claim 10.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MAX SHIKHMAN** whose telephone number is (571)270-1669. The examiner can normally be reached on **Mon-Fri 8AM-5PM**.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bhavesh M Mehta/
Supervisory Patent Examiner, Art Unit 2624

/Max Shikhman/
Examiner, Art Unit 2624
7.1.2009